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(54) **METHOD AND SYSTEM EMPLOYING FINITE STATE MACHINE MODELING TO IDENTIFY ONE OF A PLURALITY OF DIFFERENT ELECTRIC LOAD TYPES**

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CPC ***G01R 21/06*** (2013.01); ***G01D 4/004*** (2013.01); ***G01R 19/00*** (2013.01); *Y02B 90/242* (2013.01); *Y04S 20/322* (2013.01); *Y04S 20/38* (2013.01)

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USPC 702/60, 64; 323/273; 324/76.12, 521; 361/78; 707/737, 748, 757
See application file for complete search history.

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(57) **ABSTRACT**

A system is for a plurality of different electric load types. The system includes a plurality of sensors structured to sense a voltage signal and a current signal for each of the different electric loads; and a processor. The processor acquires a voltage and current waveform from the sensors for a corresponding one of the different electric load types; calculates a power or current RMS profile of the waveform; quantizes the power or current RMS profile into a set of quantized state-values; evaluates a state-duration for each of the quantized state-values; evaluates a plurality of state-types based on the power or current RMS profile and the quantized state-values; generates a state-sequence that describes a corresponding finite state machine model of a generalized load start-up or transient profile for the corresponding electric load type; and identifies the corresponding electric load type.

24 Claims, 15 Drawing Sheets